Jan. 26, 1960 P. N. BLAND 2,922,590

CHIPPER KNIFE SUPPORTING MEANS

Filed April 7, 1955

Fig. 1.

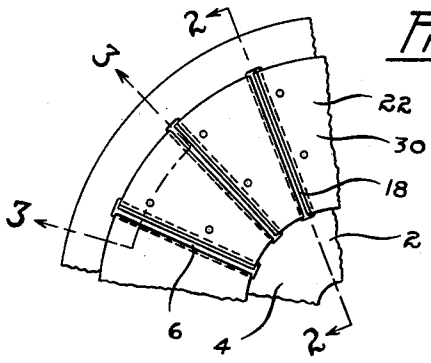


Fig. 5.

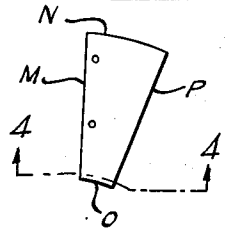


Fig. 4.

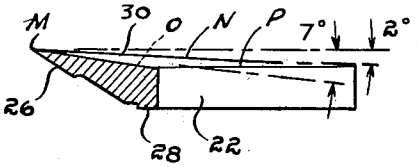
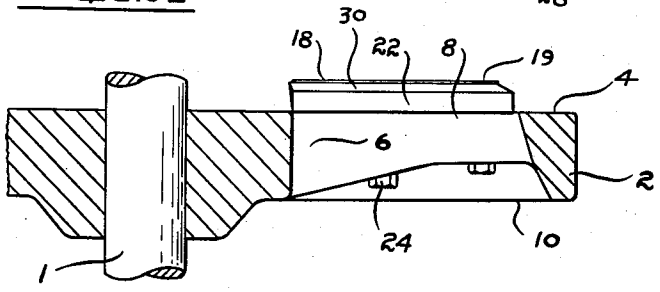


Fig. 2.



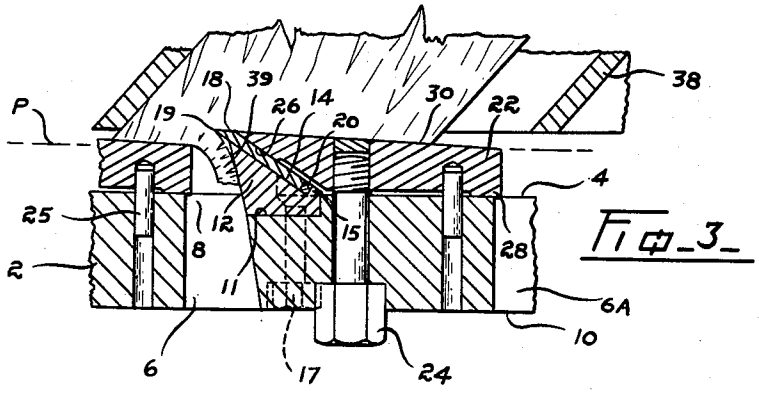


Fig. 3.

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CHIPPER KNIFE SUPPORTING MEANS

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2 Claims. (Cl. 241—92)

My invention relates to improvements in chipper knife supporting means.

The objects of the present invention are to provide a knife supporting means for a chipper which will serve as a gauge to regulate the size or length of chips cut by the chipper, and to provide a helicoidal area behind each knife which is shaped to a predetermined pitch and is applied directly to the face of the chipper disk. A further object is to provide a knife supporting means which does not require complicated or otherwise difficult shaping of the chipper disk in order to suitably mount the knives thereon. A still further object is to provide means whereby the length of the chip cut will not be affected by the continued sharpening of the knives.

Referring to the accompanying drawings:

Figure 1 is a small scale fragmentary elevational view of the chipper disk showing the invention.

Figure 2 is a sectional view taken on the line 2—2 of Figure 1.

Figure 3 is a sectional view taken on the line 3—3 of Figure 1.

Figure 4 is an enlarged sectional view taken on line 4—4 of Figure 5.

Figure 5 is a plan view of a wear plate.

In the drawings like characters of reference indicate corresponding parts in each figure.

The numeral 1 indicates the drive shaft of a pulp chipper to which a driven knife carrying disk 2 is secured. The disk 2 is a heavy circular member having a working face 4 lying in a single plane and a plurality of elongated radial slots 6 extending therethrough. These slots widen from their throats 8 to the rear face 10 of said disk to facilitate the discharge of pulp chips therethrough. A longitudinal rebate 11 is formed on the rear marginal edge of each slot, which is adapted to receive a substantially triangular knife carrier 12.

The knife carrier 12 is bevelled on its rear face and is rebated as at 14, leaving a longitudinal rib or stop 15. The carrier is bolted down onto the disk 2 with bolts 17, shown in dotted line in Figure 3. A knife 18 having a cutting edge 19 is laid in each rebate 14. Each knife is formed of a rectangular strip of steel and is adjusted by inserting one or more shims 20, if necessary, between the rear edge of the knife and the stop 15. The cutting edge 19 of each knife is disposed parallel to the working face of the disk 2.

A face or wear plate 22 is bolted to the disk 2 by bolts 24 extending through said disk from the rear, as shown in Figure 3, and is also held in position by means of dowel pins 25. Each wear plate is somewhat segmental in form extending from slightly beyond its knife carrier 12 rearwardly to the forward edge of the next following slot 6A of Figure 3. The forward bevelled edge 26 of the wear plate which engages the back of the cutting edge 19 of the knife and is in spaced parallel relation to the face 4 of the disk 2 conforms to the angle of the knife and its lower rear edge or rib 28 is projected downward to bear upon the working face 4 of

the disk 2. The underside of the wear plate 22 is relieved between the knife engaging bevelled edge 26 and the downwardly projecting rib 28 to provide a slight longitudinal flexibility to the wear plate, which flexibility ensures that the knife below said wear plate is immovably held.

The work engaging face 30 of the wear plate 22 is helicoidal, that is every part of it is laid out to a pitch lead. In the embodiment here shown, the axial pitch of the plate at the outer end of the blade is two degrees, whereas the pitch of the plate at its inner end is seven degrees, see Figure 4, and since the width of each wear plate is substantially equal to the circumferential space between adjacent slots 6 the trailing edge of each wear plate inclines downwardly and radially inwardly toward the face 4 of the disk 2.

In operation, the log or slab to be cut into chips is fed into the conventional spout 38, as shown in Figure 3, and is immediately engaged by the knives 18 mounted above the rapidly rotating disk 2. A chip shaving 39 is cut from the end of the log and the butt of said log continues to follow the incline of the wear plate 22, which as previously explained is provided with a helicoidal surface so that the end of the log adjacent the centre of the disk will be cut to depth in a short circumferential stroke and the outer peripheral portion of said log will be cut to the same depth on a relatively long circumferential stroke. The downward drag of both sides of the log, being controlled by the movement of the helicoidal surface therebelow, will be equal so that any tendency of the log to jump or rock radially of the disk is overcome and even length chips are cut. As shown particularly in Figure 4 the leading edge of the wear plate 22 is indicated by the letter M and is disposed in a horizontal plane. The outer circumferential edge N of the wear plate slopes downwardly from the edge M to a slight degree and the inner circumferential edge O slopes downwardly from the edge M to a greater degree. The rear edge P is inclined upwardly at a slight angle from the edge O to the edge N and therefore the entire area between the edges M, N, O and P becomes a helicoidal surface. The bevelled portion 26 and the underside of the rib 28 are parallel to the face 4 of the disk 2, so that the wear plate 22 is merely required to be placed in position and bolted down, thus avoiding any special recessing and fitting.

What I claim as my invention is:

1. A chipper knife supporting means comprising a chipper disk having radial slots through which chips pass as they are severed from the work, said disk having a plane working face and being provided with a rebate in the working face extending lengthwise of each slot and on the trailing side thereof, a knife carrier filling each of said rebates and projecting beyond the working face of the disk, a knife supported by the carrier at an angle to the face of the disk with its cutting edge leading in the direction of rotation of said disk, a wear plate having a disk engaging face which lies in the plane of the working face of the disk and a forwardly projecting bevelled portion forming a backing for the chipper knife, the wear plate having a work engaging face which is helicoidal throughout its area, said wear plate covering the entire circumferential length between one slot and another and being substantially segmental in form.

2. A chipper knife supporting means comprising a chipper disk having a plurality of equally spaced radial chip slots extending therethrough, said disk being rebated on the trailing edge of each slot, a knife carrier mounted in each rebate, said knife carrier being inclined in the direction of rotation and being adapted to receive a knife of rectangular form, a wear plate having a helicoidal working face bedded upon and secured to the

disk and adapted to buttress the knife against the carrier, the area of contact of the wear plate with the face of the disk being a plane surface normal to the axis of the disk, said wear plate covering the entire circumferential length between one slot and another slot and being substantially segmental in form and extending substantially from the cutting edge of its knife substantially to the leading side of the next following slot, the upper surface of the wear plate being shaped to conform to a helical path of a width equal to the length of the

knives and having a diameter substantially equal to that of the knives at their outer edges.

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